

UNCRATING/INSTALLATION INSTRUCTIONS

RELIANCE® 400/500 LABORATORY GLASSWARE WASHER

**RELIANCE® 400 LABORATORY GLASSWARE WASHER -
INTERNATIONAL**

**RELIANCE® 450 GLASSWARE WASHER
RELIANCE® 450 GLASSWARE WASHER - INTERNATIONAL**

**(11/30/01)
Rev. 7**

P-122996-649

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A WORD FROM STERIS CORPORATION

Follow each step of the uncrating/installation instructions **in the order presented**. Open the carton carefully to avoid damage to the equipment inside. If you find any indication of damage to the equipment (no matter how slight), show it to your supervisor.

To properly install this unit, you will need the Equipment Drawings (previously furnished), showing all utility service and space requirements. If drawings cannot be located, replacement copies may be obtained by writing, faxing or telephoning STERIS, giving the serial and model numbers of your equipment.

Once installed, equipment operation should be tested by a qualified service technician prior to your usage of the equipment.

If STERIS supervision is desired, for installing and starting up this equipment, contact your local STERIS representative.

Indications for Use

The **Reliance® 400 Laboratory Glassware Washer, Reliance® 450 Glassware Washer, Reliance® 500 Laboratory Glassware Washer Reliance® 400 Laboratory Glassware Washer - International, and Reliance® 450 Glassware Washer - International** are indicated for the thorough cleaning of laboratory glassware, plastic and metal goods used in research, production support and quality control laboratories.

Advisory

IMPORTANT: A listing of Safety Warnings and Cautions to be observed when uncrating, installing and operating this washer can be found on Page 1-1 of these instructions. Do not begin uncrating/ installing this equipment until you have become familiar with this information.

IMPORTANT: Be sure to check local occupational health and safety regulations, as well as electric and plumbing codes, for any special requirements that may pertain to the installation of this unit.

Any alteration of the equipment not authorized by STERIS Engineering Service which could affect its operation will void the warranty, could adversely affect washing efficacy, could violate national, state and local regulations, and could jeopardize your insurance coverage.

STERIS supervision is recommended for installing and starting up this equipment. Contact the STERIS Regional Office nearest you for availability information on this service.

Service Information

A thorough preventive maintenance program is essential to safe and proper operation of this equipment. You are encouraged to contact your STERIS representative concerning extended service maintenance agreements to give your washer planned maintenance, assuring equipment performance according to factory specifications.

A global network of skilled service specialists can provide periodic inspections and adjustments to assure low-cost peak performance. STERIS representatives can provide information regarding Annual Maintenance Agreements.

STERIS carries a complete line of accessories for use in this equipment. Your STERIS representative will gladly review these with you.

Sales and Service Information: Technical Assistance:

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Nordic	358 9 25 851
Singapore	65 841 7677
Spain	34 91 658 5920
Sweden	46 152 228 30
United Kingdom	44 1256 84 0400

Web Site: www.steris.com

Certification

IMPORTANT: The designation **Reliance 400 Laboratory Glassware Washer - International** and **Reliance 450 Glassware Washer - International** identify the washer models which are CE-marked. Information pertaining specifically to the Reliance 400 - International and to Reliance 450 - International is clearly identified throughout the manual.

The **Reliance® 400/500 Laboratory Glassware Washers**, and **Reliance® 450 Glassware Washer** meet the applicable requirements of the following standards:

Underwriters Laboratories (UL):

Standard 544 as certified by ETL Testing Laboratories, Inc.

Canadian Standards Association (CSA):

Standard C22.2 No. 151-M1986.

The **Reliance® 500 Laboratory Glassware Washer** is **Not CE** marked.

The **Reliance® 400 Laboratory Glassware Washer - International**, and **Reliance® 450 Glassware Washer - International** meet the applicable requirements of the following standards:

Conformity to applicable directives:

Machinery Directive (98/37/EC), Electromagnetic Compatibility Directive (89/336/EEC) and amendments (91/263/EEC, 92/31/EEC and 93/68/EEC); Low Voltage Directive (73/23/EEC) and amendment (93/68/EEC).

Standards applied to demonstrate conformity to the directives:

EN-292-1 (1991), EN292-2 (1991), EN-61010-1 (1993), EN-294 (1992), EN-349 (1993), ISO-3746 (1979), EN-457 (1992), EN-418 (1992), EN-55011 (1991), EN-55014 (1991), EN-55022 (1994), CISPR22 (1993), CISPR11 (1990), IEC-801-2 (1991), IEC-801-3 (1984), IEC-801-4 (1988), EN-50082-1 (1992).



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LISTING OF WARNINGS, CAUTIONS AND SYMBOLS


1

The following is a listing of the safety precautions which must be observed when uncrating, and installing equipment. **WARNING** indicates the potential for danger to personnel and **CAUTION** indicates the potential for damage to equipment. These precautions are repeated, where applicable, throughout the instructions.

WARNING - PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

-  When moving the unit, use a forklift. Do not use door(s) or door handle(s) for lifting.
-  When removing manual door counterweight support(s), leave chamber door(s) closed to prevent counterweight(s) from dropping.

WARNING - LACERATION/EYE INJURY HAZARD:

-  When removing bands, wear gloves and eye protection, and always use a tool specifically designed to cut the bands. The bands used to secure this carton can cause personal injury when cut and tension is released.



WARNING - LACERATION HAZARD:

-  When removing bolts, wear gloves to protect your hands.

WARNING - PERSONAL INJURY HAZARD:

-  The chamber door is heavy. Lifting it manually may require two people.

WARNING - BURN HAZARD:

-  When checking the automatic stop feature, wear gloves and face protection and open chamber door slowly. Hot water/steam may be sprayed through door opening if door is opened during a cycle.
-  Except for emergency, do not open door when cycle is in progress. In an emergency, first stop cycle by pressing the STOP touch pad and wait for water flow to stop. Wear protective gloves and face shield whenever reaching into chamber.

WARNING - FALL HAZARD:





-  To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

WARNING - ELECTRICAL SHOCK HAZARD:








-  Fasteners and star washers are used to ensure protective bonding continuity. Always reinstall any star washer which may have been removed during installation or servicing.





(See next page for additional Warnings and Cautions)

CAUTION - POSSIBLE EQUIPMENT DAMAGE:

-  After utilities are connected to equipment, slowly remove the protective adhesive paper from the exterior cabinet panels to reduce the level of static discharge.
-  When removing adhesives from stainless steel, use a small amount of non-flammable cleaning solvent. Rub in a back-and-forth motion (in same direction as surface grain). Solvent rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use solvents on painted surfaces.
-  Once three-phase power is connected, check pump for correct rotation (indicated by arrow on pump motor). Incorrect pump rotation may result in pump damage and improper cleaning action.
-  Before operating unit, always position each manifold or accessory header over a manifold connector. If manifolds or accessory headers are not positioned correctly, damage may result and unit will be unable to effectively wash loads.

////////////////////
Symbols
////////////////////

Symbol	Definition
	Transfer of Heat, Hot Surface
	Protective Earth (Ground)
	Warning! Risk of Electrical Shock
	Electrostatic Sensitive Device
	Tip'N Tell Indicator
	Attention. Refer to Manual for Further Instructions
	Maximum Shipping and Storing Temperature

	Maximum Humidity Level
	This Way Up
	Do Not Stack
	Fragile
	Keep Dry
A	Amperage Rating of the Unit
V	Voltage Rating of the Unit
~	Alternating Current
kW	Power Rating of the Unit
Hz	Frequency of the Unit
ϕ	Phase of the Unit

Open Crate



WARNING - PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: When moving the unit, use a forklift. Do not use door(s) or door handle(s) for lifting.



WARNING - LACERATION / EYE INJURY HAZARD: When removing bands, wear gloves and eye protection, and always use a tool specifically designed to cut the bands. The bands used to secure this carton can cause personal injury when cut and tension is released.

NOTE: Unit weighs approximately 1000 lbs (454 kg) for Models 400 and 450; 1500 lbs (680 kg) for Model 500. Use a forklift to move the unit.

NOTE: Uncrate on level floor as close to installation site as possible.

NOTE: Operator Manual is enclosed in an envelope taped on the side of the unit. Make sure appropriate person receives Operator Manual.

Reliance 400/500 Laboratory Glassware Washer, Reliance 450 Glassware Washer:

1. Position unit to open crate from top and side. Provide a clear work area on all sides.
2. Carefully cut and remove bands from crate (see Figure 2-1). Discard bands before continuing.
3. Lift off cardboard top.
4. Remove nails attaching cardboard to skid.
5. Pull cardboard carton away from unit. Discard carton.
6. Carefully remove barrier wall flanges (accessory for **Model 400**, **Model 450** and **Model 500**) and set aside (see Equipment Drawing for Installation Instructions).
7. Remove and discard polystyrene wrap from unit.

NOTE: Do not remove protective adhesive paper from the exterior cabinet panels until after utilities are connected.

Reliance 400 Laboratory Glassware Washer - International, Reliance 450 Glassware Washer - International:

1. Check Tip Indicator, located on upper left side of crate (see Figure 2-2). Tip Indicator contains a blue compound at the bottom of the indicator. If unit has been tipped, residue from the blue compound will be found higher up in the indicator.

If unit has been tipped, contact your STERIS representative to determine if a service technician is required to inspect the equipment and determine if unit was damaged.

2. Position unit to open wooden crate from top and side. Provide a clear work area on all sides.
3. Carefully cut and remove bands from crate. Discard bands before continuing.
4. Remove and discard polyethylene wrap from crate.

NOTE: Operator Manual is enclosed in an envelope taped on the side of the unit. Make sure appropriate person receives Operator Manual.

5. Using a nail puller, remove and discard top wooden panel.



WARNING - PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: When moving the unit, use a forklift. Do not use door(s) or door handle(s) for lifting.



WARNING - LACERATION / EYE INJURY HAZARD: When removing bands, wear gloves and eye protection, and always use a tool specifically designed to cut the bands. The bands used to secure this carton can cause personal injury when cut and tension is released.

6. Using a nail puller, remove and discard side wooden panels.
7. Using a nail puller, remove and discard wooden crate frame.
8. Carefully remove barrier wall flanges (accessory) and set aside.
9. Remove and discard shrink wrap and polystyrene wrap from unit.

NOTE: Do not remove protective adhesive paper from the exterior cabinet panels until after utilities are connected.

All units:

10. Open lower service access door and check tip indicator, located inside lower service compartment (see Figures 2-3 and 2-4). Tip 'n' Tell indicator contains a blue compound at the bottom of the indicator. If unit has been tipped, residue from the blue compound will be found higher up in the indicator.

If unit has been tipped, contact your STERIS representative to determine if a service technician is required to inspect the equipment and determine if unit was damaged.

11. Close doors to the lower service access and chemical storage compartments.

NOTE: Do not open chamber door(s) until procedures in "Prepare Equipment for Installation", later in this section, are performed.

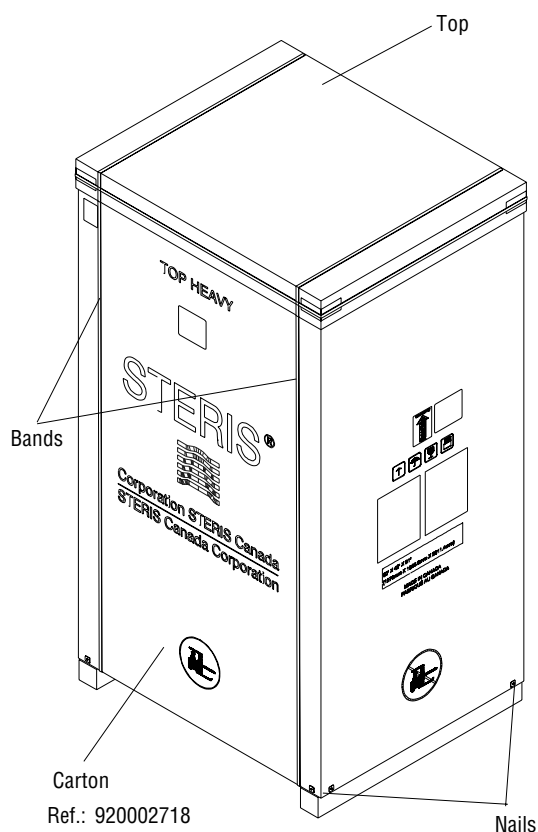


Figure 2-1. Crate

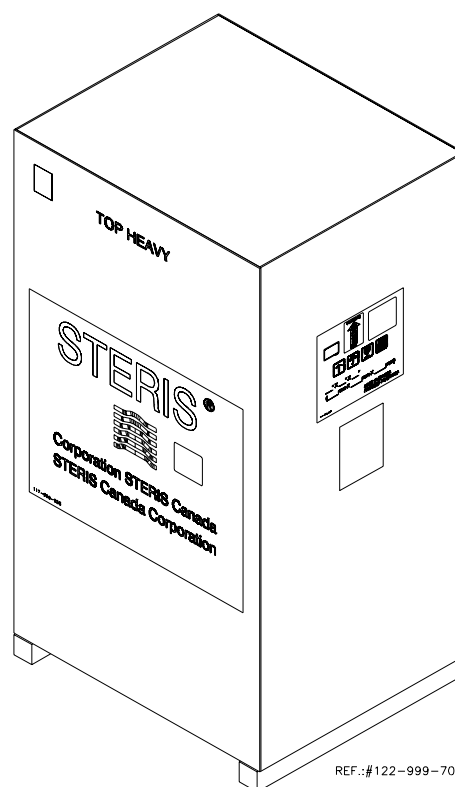


Figure 2-2. Crate (International units)

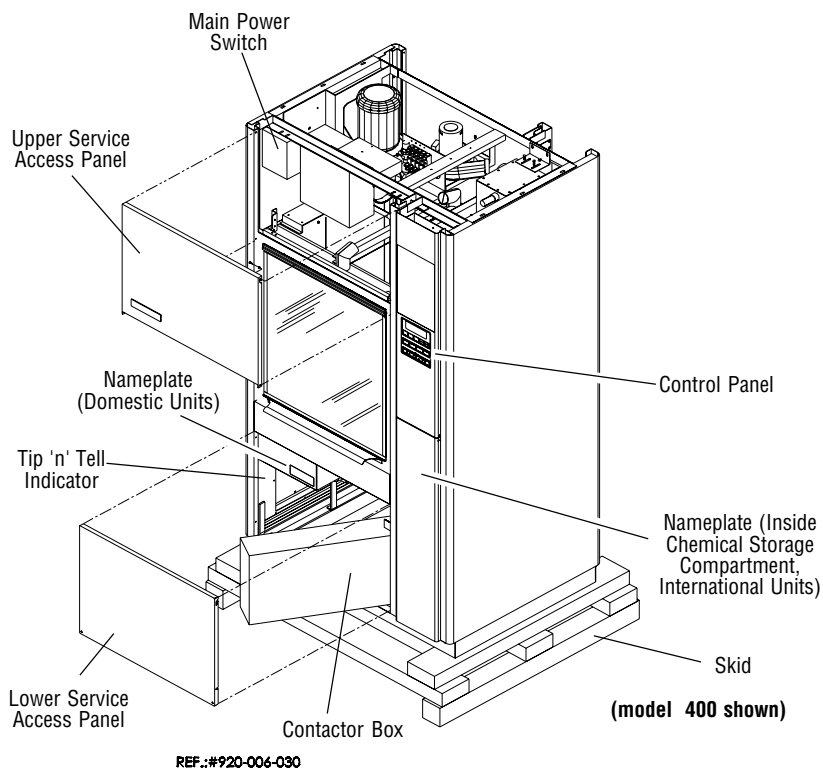


Figure 2-3.
Reliance Models 400/400 - International and
Reliance Models 450/450 International

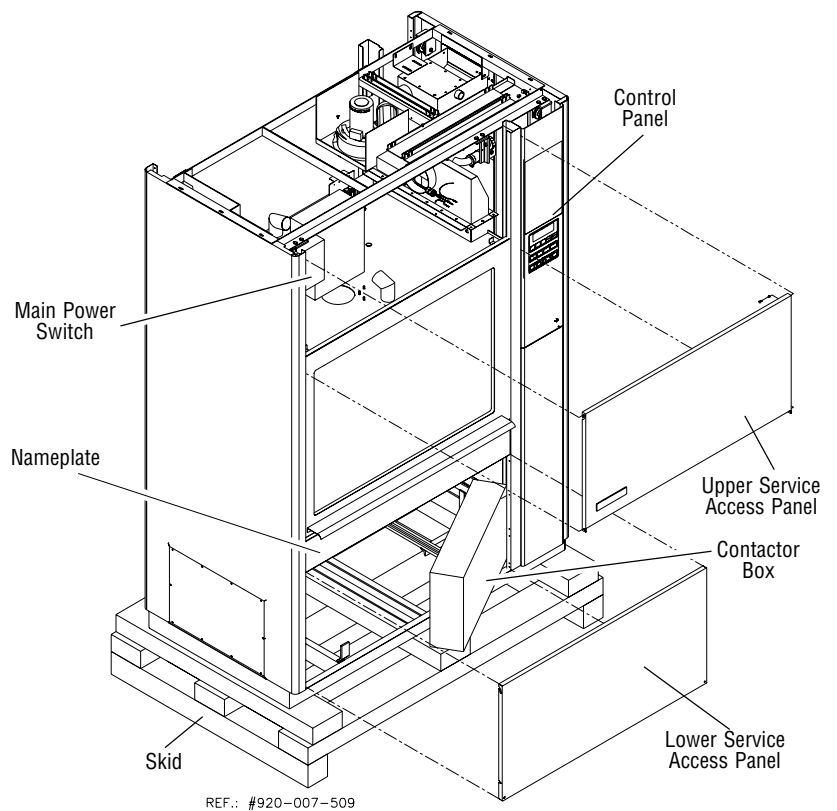
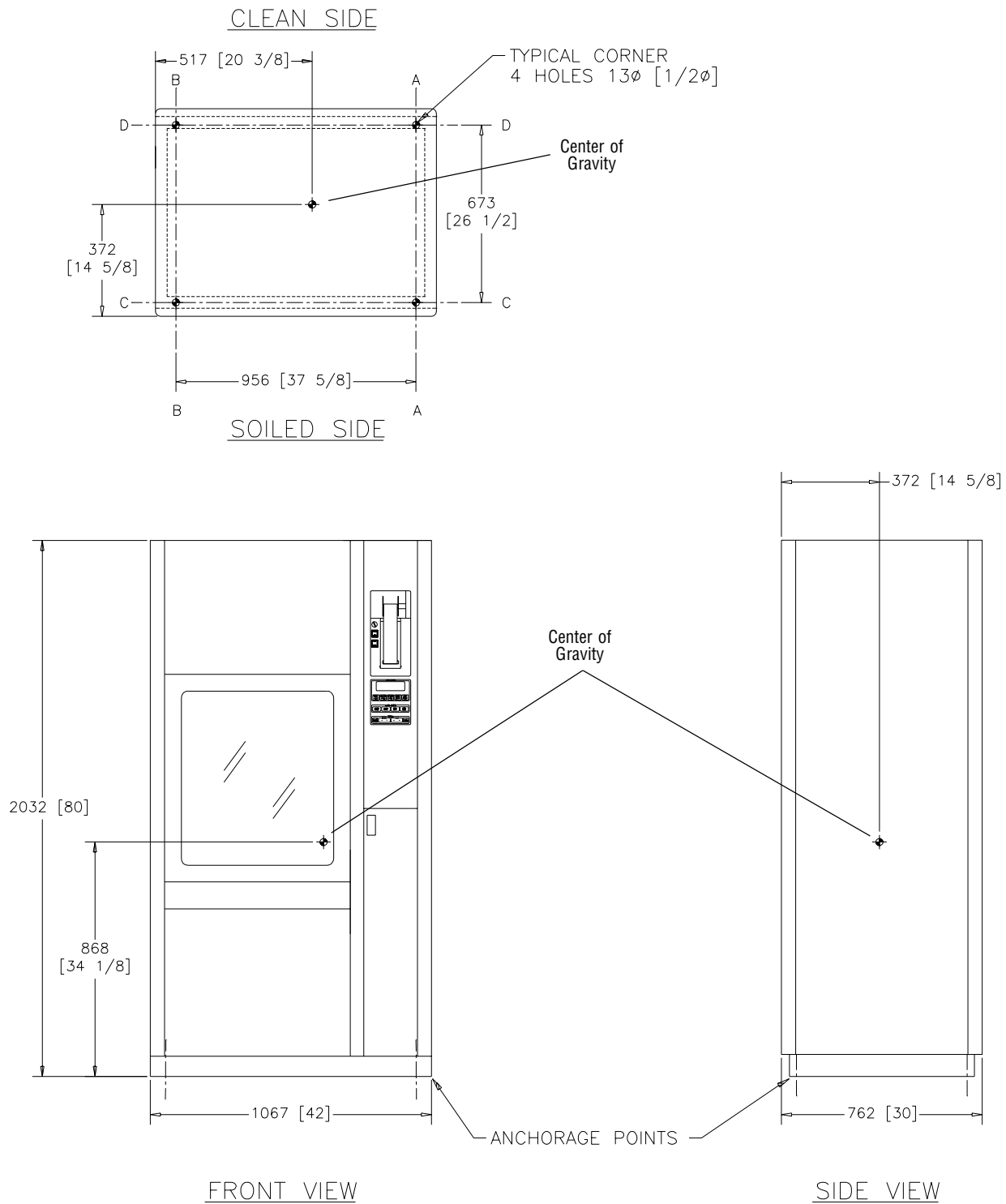
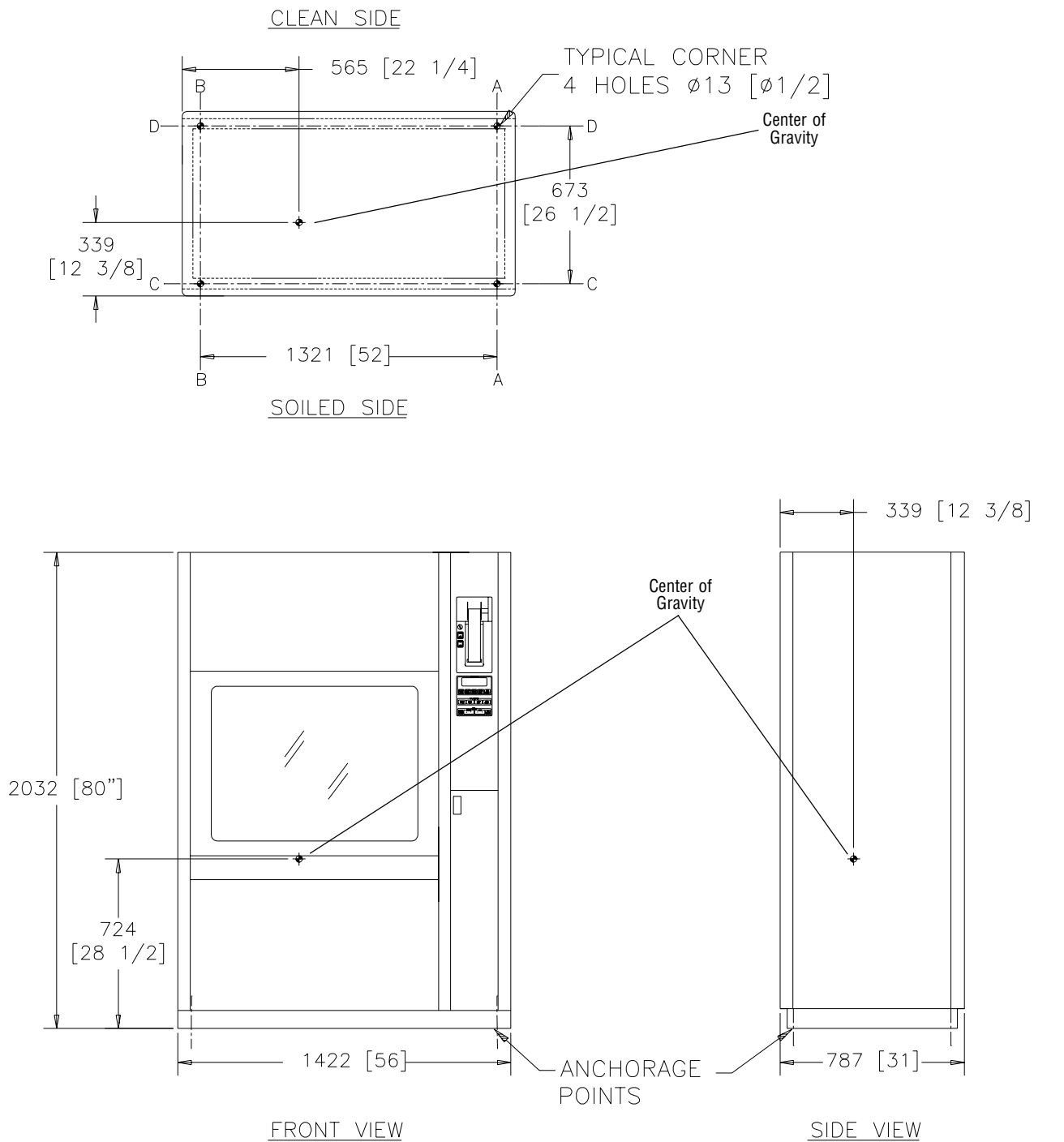


Figure 2-4. Reliance Model 500



REF: 122-995-544

Figure 2-5. Center of Gravity
Models 400/400- International and 450/450 - International



REF. #920-007-505

Figure 2-6. Center of Gravity for Model 500

Move Equipment and Remove Skid

WARNING - PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: When moving the unit, use a forklift. Do not use door(s) or door handle(s) for lifting.

WARNING - LACERATION HAZARD: When removing bolts, wear gloves to protect your hands.

1. With unit still mounted on skid, use a forklift to move unit to installation site.

If necessary, unit may be tilted extremely carefully on its left side to accommodate narrow conditions. Tilt equipment onto the side opposite of the control column (see Figures 2-7 and 2-8. Also refer to Figures 2-5 and 2-6 for Center of Gravity).

NOTE: At least four people are required to tilt **400** and **450** units. Unit is heavy and center of gravity is very high (see Figure 2-5).

NOTE: At least five people are required to tilt a **500** unit. The unit is heavy and center of gravity is very high (See Figure 2-6).

2. Remove four lag bolts securing unit base to skid.

NOTE: The front right-hand side lag bolt is located under the chemical storage compartment. Storage drawer must be pulled out of the compartment to access the bolt.

3. Remove and discard skid from under equipment. If necessary, use a piece of plywood as a small ramp to slide unit from skid to floor.

4. Position unit in final location. Use tubing as rollers and roll the unit into position.

NOTE: Floor under unit should be level. If necessary, use adjustable legs to level unit (see Figures 2-5 and 2-6 for Center of Gravity).

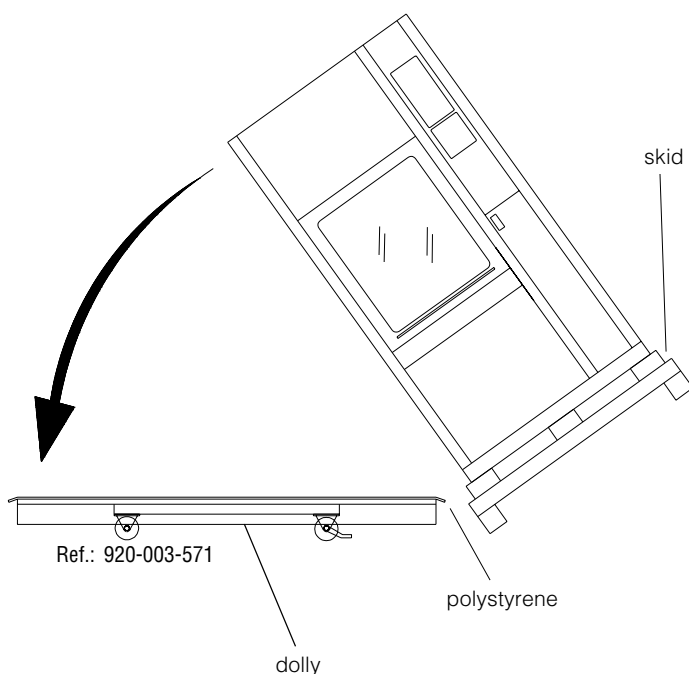


Figure 2-7. Tilt 400 and 450 Units (only if necessary)

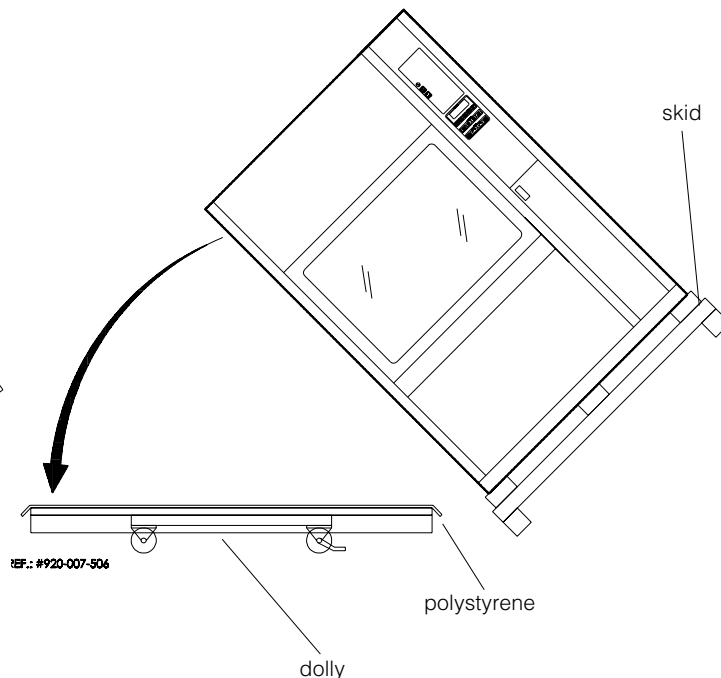


Figure 2-8. Tilt a 500 Unit (only if necessary)

Prepare Unit for Installation



WARNING - ELECTRICAL SHOCK HAZARD: Fasteners and star washers are used to ensure protective bonding continuity. Always reinstall any star washer which may have been removed during installation or servicing.

NOTE: Do not remove protective adhesive paper from the exterior cabinet panels until after utilities are connected.

1. Remove screws from bottom right and left hand corners of the upper service access panel(s) (see Figure 2-9).
2. Remove the Upper Service Access Panel(s).
3. Slide wooden panel, located behind load side Upper Service Access Panel, up and out of the chamber door guides.
4. If single-door unit, remove wooden panel at the back of the washer.
If double-door unit, remove wooden panel behind unload side Upper Service Access Panel on unload side.
5. Check that door cables are seated in the pulley grooves (six pulleys).
6. Remove light bulb from detergent compartment and install on top of unit.
7. Close control service panel and chemical storage compartment doors.

NOTE: If unit is equipped with manual door(s), refer to instructions in "Manual Door Preparation" further in this section.

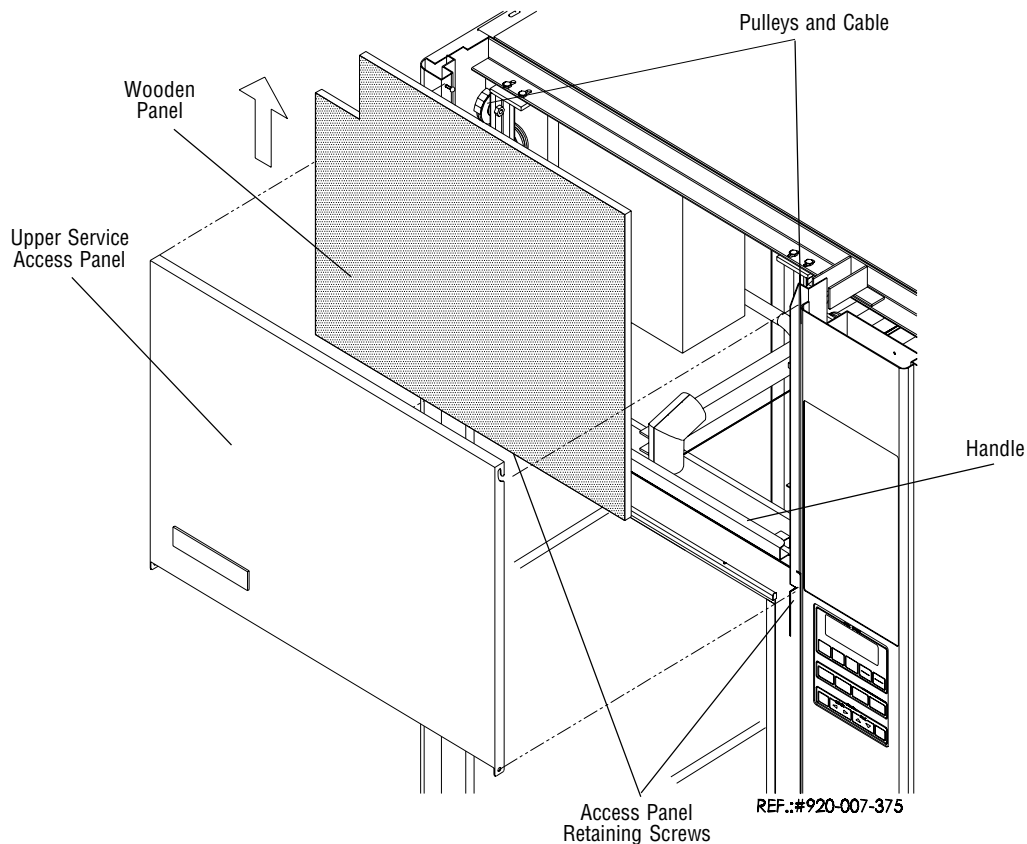
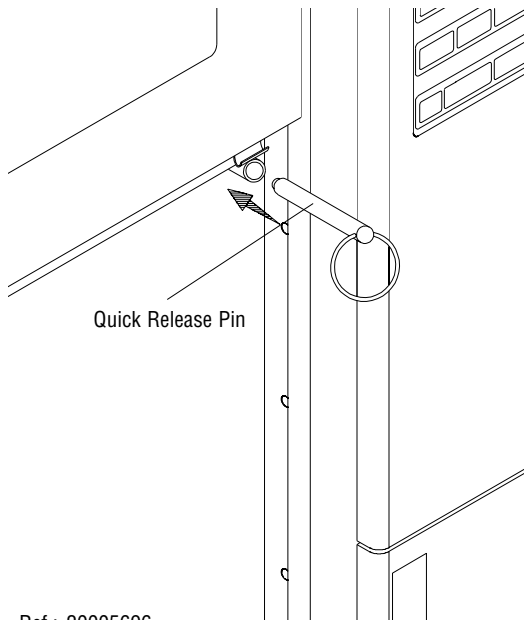


Figure 2-8. Remove Wooden Panel



WARNING - PERSONAL INJURY HAZARD: The chamber door is heavy. Lifting it manually may require two people.



Ref.: 20005696

Figure 2-10. Safety Door Stop (Models 400 and 450)

8. Secure door in open position:

NOTE: On Model 500 only: when lifting door, door cable loosens causing safety latches in door to engage with catches in the door frame, keeping the door in open position.

- Remove quick release pin from load side chemical compartment or from unload side service panel located under control panel.
- Lift door using handle located at top of chamber door (see Figure 2-9).
- Insert quick release pin into safety door stop (see Figure 2-10).

NOTE: Flip bottom corner silicone gasket towards the front before lowering door on safety door stop (see Figure 2-10).

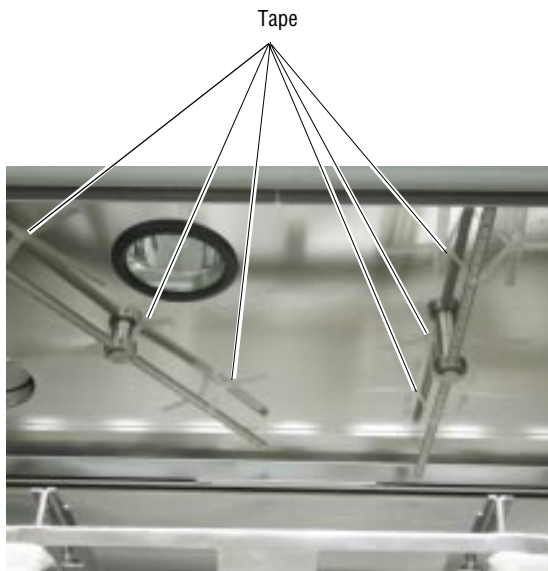
- Slowly lower door on safety door stop.

9. Remove tape securing rotary spray arm assembly to top of wash chamber (see Figure 2-11).

10. Remove tape securing debris screens and manifold connector(s) in bottom of wash chamber (sump) (see Figure 2-12).

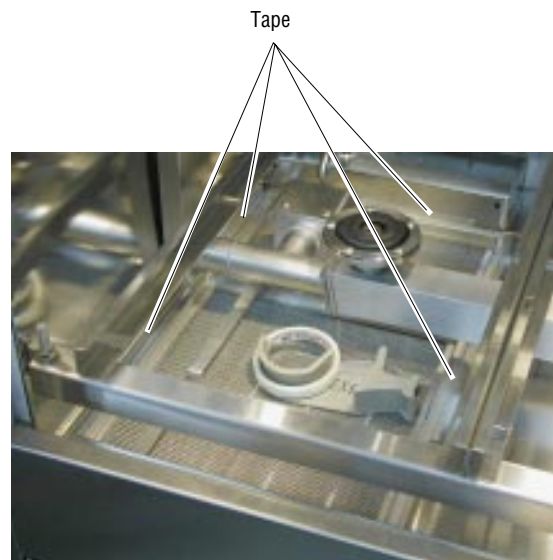
NOTE: Model 400 is equipped with two manifold connectors; Model 450 is equipped with one manifold connector; Model 500 is equipped with three manifold connectors.

11. On Models 450 and 500, remove tape securing suction filter to sump (see Figure 2-13).



Ref.: 920-012-507

Figure 2-11. Remove Tape from Spray Arms



Ref.: 920-012-504

Figure 2-12. Remove Tape from Debris Screens

12. On Model 400, remove tape blocking the sump drain opening, located under the sump heating coil or electric heating element.
13. Remove nylon straps securing optional Universal Shelving System to wash chamber (see Figure 2-14).
14. Remove tape securing rotary spray arms to shelves.

NOTE: Leave chamber door open. Do not close chamber door until after door cables are checked during Operational Test.

15. Close control service panel and chemical storage compartment doors.
16. Remove tape securing the pure water rinse tank cover as follows:
 - a. Open control service panel door. Disconnect all electrical connectors attached to bottom of control console.

NOTE: Electrical connectors are not flexible enough to lower console with connectors still attached.

- b. Remove two retaining screws securing top of control con-



Ref.: 920-012-506

Figure 2-13. Remove Tape from Suction Filter



Nylon Straps

Ref.: 920-012-505

* Model 500 Shown

Figure 2-14. Remove Nylon Straps from Universal Shelving System

sole to unit frame. Lower console to horizontal position (see Figure 2-15).

- c. Remove tape from pure water tank cover (see Figure 2-15).
 - d. Raise control console and secure in place with retaining screws.
 - e. Reconnect electrical connectors to bottom of control console and close control service panel door.
17. Discard all packing material removed during uncrating procedures.

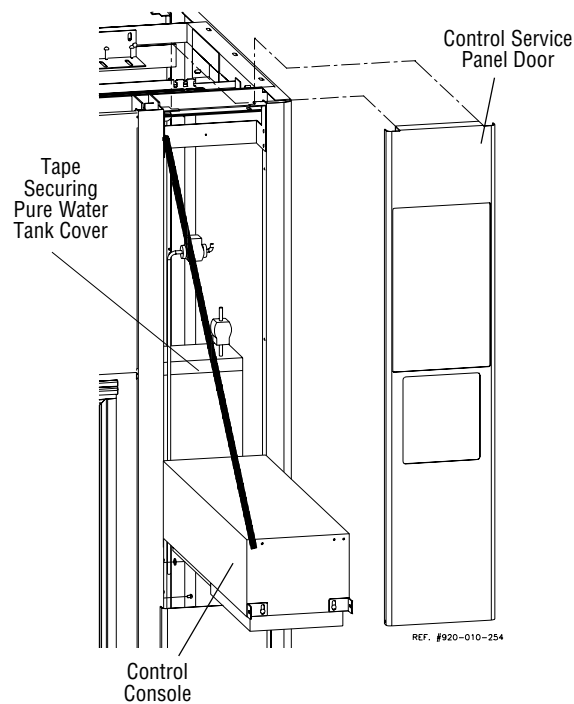


Figure 2-15. Lower Control Console

>> Manual Door Preparation

On unit equipped with manual doors, counterweight are secured for shipment with wooden supports.

1. If single door unit, close door and remove wooden support as follows:

⚠ WARNING - PERSONAL INJURY HAZARD AND/OR EQUIPMENT DAMAGE: When removing manual door counterweight support(s), leave chamber door(s) closed to prevent counterweight(s) from dropping.

⚠ WARNING - ELECTRICAL SHOCK HAZARD: Fasteners and star washers are used to ensure protective bonding continuity. Always reinstall any star washer which may have been removed during installation or servicing.

- a. Open the control service panel and chemical storage compartment doors.
- b. Locate chemical pump(s) attached to back of chemical storage drawer (see Figure 2-16).
- c. Disconnect low-level sensor(s) at connection point behind the chemical pump(s).
- d. Remove four screws attaching back of the chemical storage drawer to the lower pump support (see Figure 2-16).
- e. While holding on to the lower pump support, slide drawer out of the chemical storage compartment.
- f. From the upper service compartment, pull down on the counterweight cable, about 1 or 2" (25 or 50 mm), to raise counterweight off of the support (see Figure 2-17).

NOTE: Do not pull cable towards the front of the unit as this may cause cable to disengage from pulley grooves.

- g. Slide counterweight protection plate up to unlock plate from the counterweight box guides (see Figure 2-16). Pull plate down and out of the storage compartment.
- h. From the chemical storage compartment, lift support up until bottom of support clears the chemical storage drawer (see Figure 2-18).

NOTE: In order for the bottom of support to clear the storage drawer, top of counterweight support must be lifted through the opening between counterweight box and chemical pump support, visible from area under control service panel (see Figure 2-18).

- i. Pull support out of unit through the storage compartment and slowly release counterweight cable.
 - j. Replace counterweight protection plate and push chemical storage drawer back into compartment.
 - k. Attach storage drawer to lower pump support and reconnect low-level sensor(s).
2. If double-door unit, first close the load-side chamber door.
3. Repeat steps 1.a. through 1.k. for the unload-side chamber door.
4. Continue unit preparation as explained on page 2-8, steps 9 through 14.

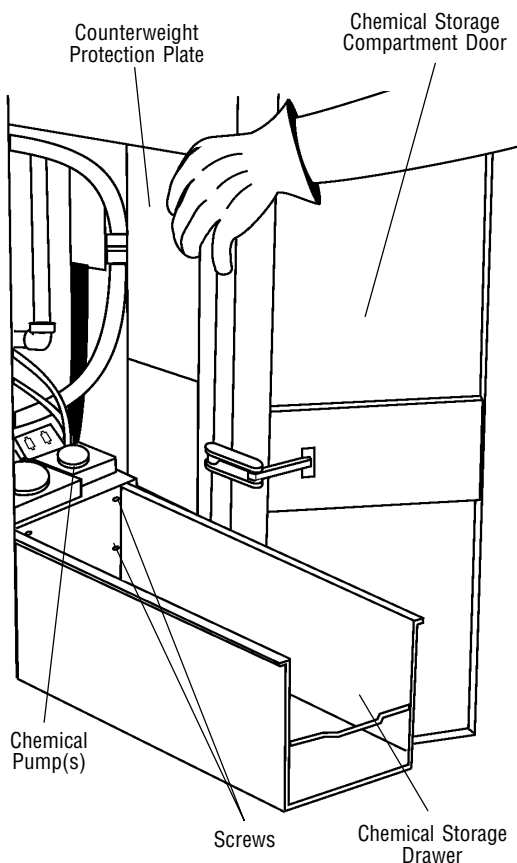


Figure 2-16. Pull Storage Drawer Out and Remove Counterweight Protection Plate

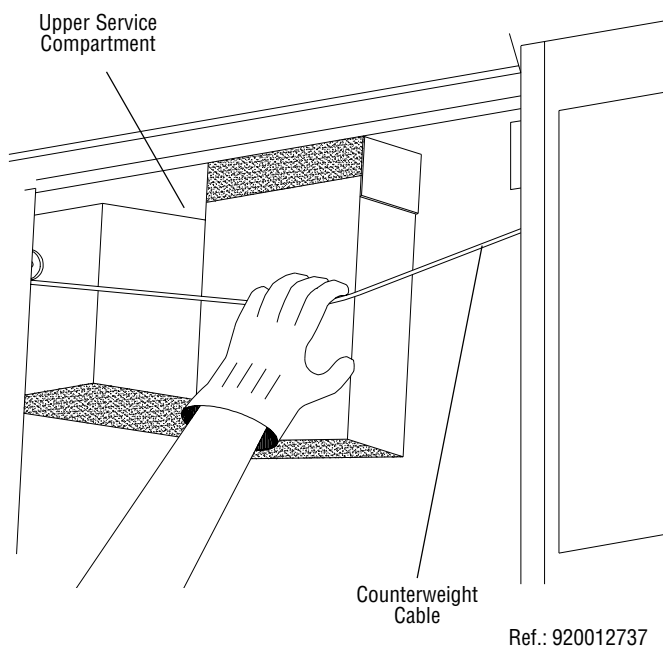


Figure 2-17. Pull Down Counterweight Cable

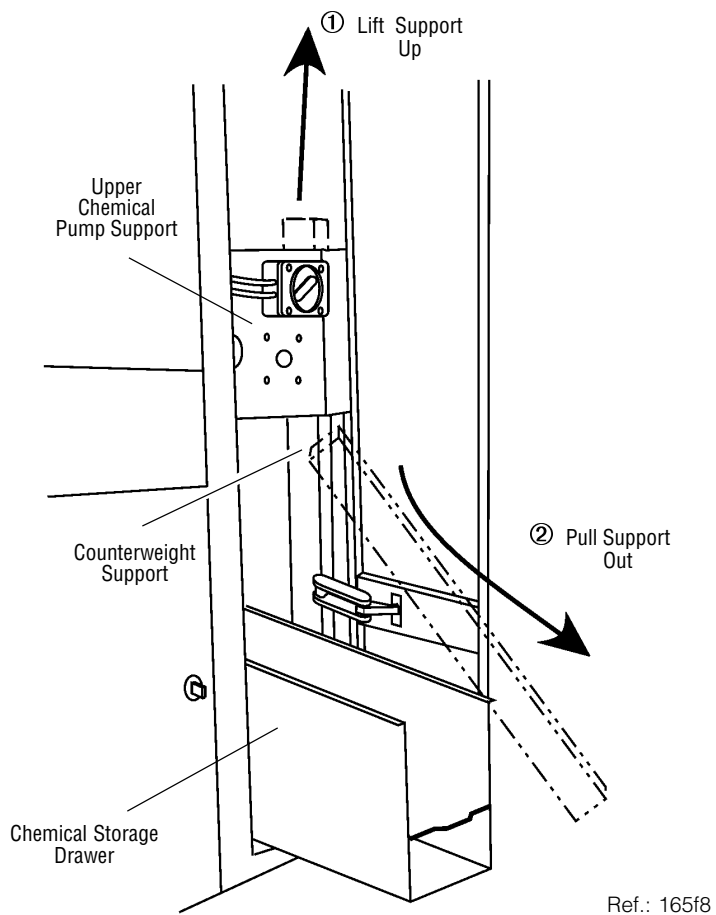


Figure 2-18. Remove Counterweight Support

Technical Specifications

VOLTAGE, AMPERAGE AND POWER CONSUMPTION

The **Reliance® 400 Laboratory Glassware Washer**, **Reliance® 450 Glassware Washer** and **Reliance® 500 Laboratory Glassware Washer** operate on:

- 208 V~, 60 Hz, 3-phase, 4-wire
- 480 V~, 60 Hz, 3-phase, 3-wire

The maximum currents and power consumptions are indicated on nameplate located in front of sump. (see Figures 2-3 and 2-4).

The **Reliance® 400 Laboratory Glassware Washer - International**, **Reliance® 450 Glassware Washer - International** operate on:

- 380/400/415 V, 50 Hz, 3-phase, 4-wire

The maximum currents and power consumptions are indicated on nameplate located inside chemical storage compartment (see Figure 2-3).

PERMISSIBLE ENVIRONMENTAL CONDITIONS

This equipment is designed to give optimal results in an environment where maximum relative humidity is 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).

NOISE LEVEL

Equivalent Sound Pressure Level at work station (measured 36" [1 m] away from equipment and at 63" [1.6 m] from ground): 67.6 dB (A) (Results determined according to *ISO-3746: 1979 Standard: Acoustics Determination of Sound Power Levels of Noise Sources Survey Method*).

SEISMIC ANCHORAGE SYSTEM

A Seismic Anchorage System is available for high risk seismic zones.

Installation Requirements

An Equipment Drawing, showing all utility and space requirements, was sent to you after the order for this equipment was received. The clearance space, specified on the Equipment Drawing is necessary for proper installation, operation and maintenance of the unit. If this document is missing or misplaced, contact your STERIS representative, giving the serial, equipment and model number of the unit. A replacement copy will be sent promptly.

1. Clearance - Clearance space shown on Equipment Drawing is necessary for easy installation and proper operation and maintenance of unit.
2. Barrier wall flange(s) installation - Refer to Equipment Drawing for installation.
3. Utility service lines:
 - To allow service on unit without shutting off building supply lines, shutoff valves (not by STERIS) should be installed on steam, air and water lines to unit. Shutoff valves must be capable of being locked in OFF position only.

Reliance 400, 500 and 450 units:

- Disconnect switches must be marked as the disconnecting device for the equipment and must be capable of being locked in OFF position only.
- If unit is installed next to other equipment, shutoff valves and disconnect switches should be located so that service can be shut off to one piece of equipment at a time.
- The disconnect device of the equipment must be within easy reach of the operator (preferably no more than 36" (1 m) away from equipment).
- Utility service requirements are shown on Equipment Drawing.

Reliance 400 - International and 450- International units:

- A 40 A (electric-heated unit) or 20 A (steam-heated unit) ~ disconnect switch meeting the requirements of EN-60947 (not by STERIS) should be installed in electric supply lines near unit.
- Disconnect switches must be marked as the disconnecting device for the equipment and must be capable of being locked in **OFF** position only.
- If unit is installed next to other equipment, shutoff valves and disconnect switches should be located so that service can be shut off to one piece of equipment at a time.
- The disconnect device of the equipment must be within easy reach of the operator, preferably no more than 1 m (3') away from equipment.
- Utility service requirements are shown on Equipment Drawing.

4. Electricity

- **If supply is 380 V or 400 V**, locate the 600 VA transformer, inside electrical supply box, disconnect brown wire from 250 V tap connection. Connect brown wire of primary side to 230 V

tap connection.

- Check Equipment Drawing or Nameplate (located inside Chemical Storage Compartment (see Figure 2-3) for proper voltage and amperage.
- Run HAR-approved supply cord from disconnect switch to unit electrical supply box. A European-approved type inlet bushing (strain relief) must be fitted to opening on electrical supply box in order to protect supply cord.

5. Protective Conductor Terminal

- a. A protective conductor terminal is required (Class 1 Equipment).

IMPORTANT: A protective conductor connection is essential for the safe operation of the equipment. Check for presence of protective conductor at equipment terminal and verify if connection is well secured inside terminal with proper torque requirement.

- Torque requirement for supply conductor terminals:
 - Steam heated units (L1-L2-L3- N): 0,8-1,0 N•m.
 - Electric heated units (L1-L2-L3- N): 1,2-1,4 N•m.
- Protective conductor terminal:
 - 2,0-2,25 N•m (steam and electric heated units).

Connect Utilities

1. Make sure unit is placed, as shown on Equipment Drawing, in correct relation to building supply lines. If unit is not at installation site, refer to Uncrating Instructions (Section 2) for proper moving instructions.
2. Check level of unit.
 - a. Place a spirit level on loading rack inside wash chamber.
 - b. Level unit, end-to-end and side-to-side, using leveling legs located at base of unit.

NOTE: If Reliance 450/450 - International: All connections are on top of unit, except for the drain. See Figure 3-2 for connection location.

3. Open lower service access door.
4. Remove bolt, located on bottom left-hand side of unit, securing contactor box to unit frame.
5. Pivot contactor box outwards to access the lower utility connections (see Figures 2-3 and 2-4).

NOTE: For better access, disconnect electrical connections from contactor box, lift box off hinges and set aside.

6. Connect the following building supply lines to the unit (see Figure 3-1 for **Model 400**, Figure 3-2 for **Model 450** and Figure 3-3 for **Model 500**).
 - DRAIN - Connect building waste line to unit drain line, accessible from lower service compartment.

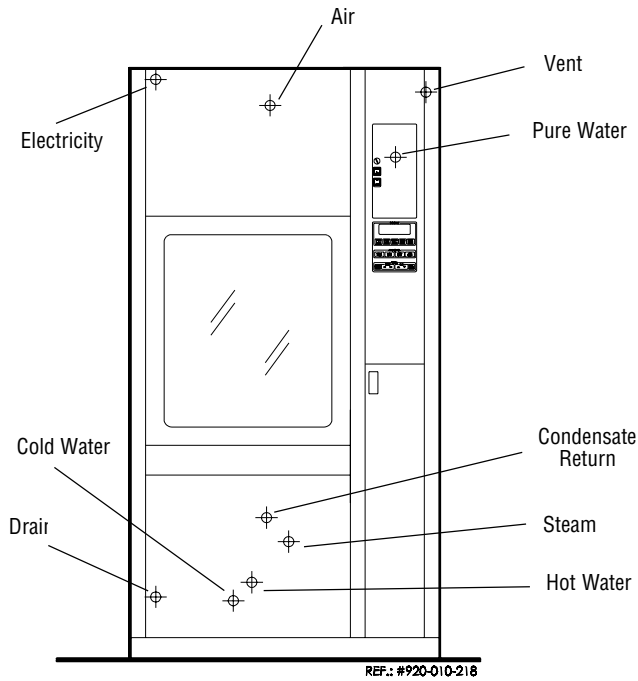


Figure 3-1. Model 400 Utility Connections

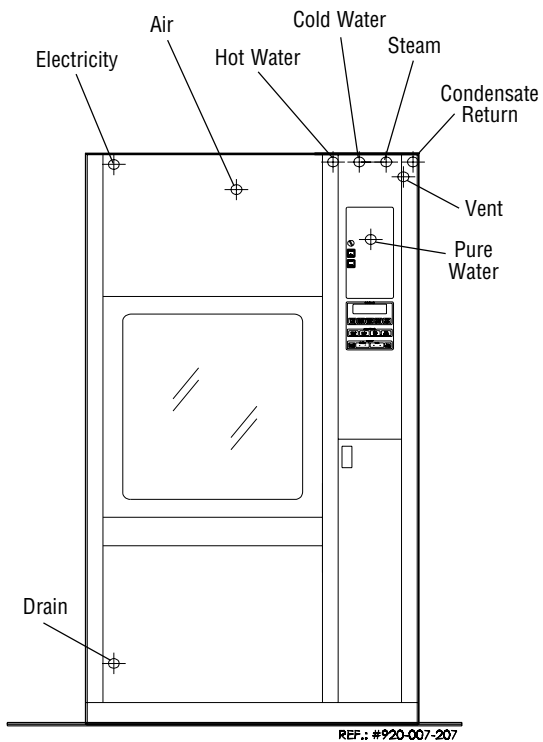


Figure 3-2. Model 450 Utility Connections

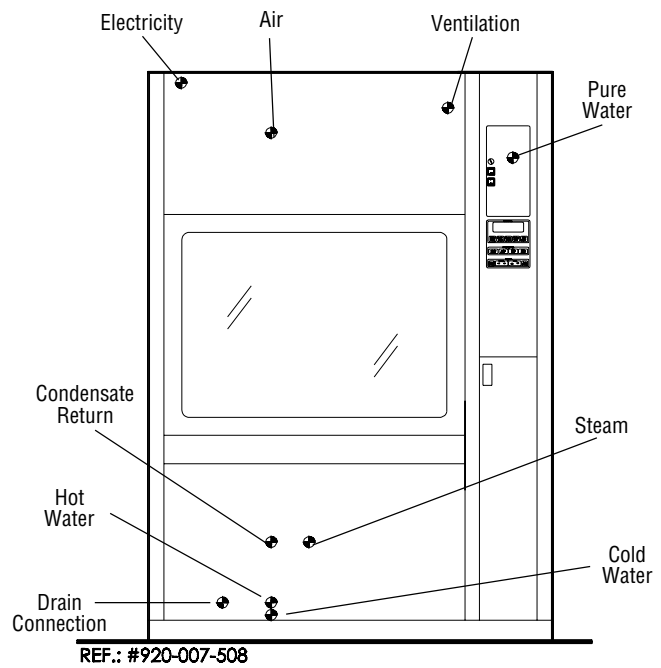


Figure 3-3. Model 500 Utility Connections

- HOT WATER - Blow out the building hot water supply line to remove chips, scale, etc. Connect line to unit connection.

NOTE: Water is hot; run water line to a safe sink or drain.

- COLD WATER (required on **Model 400** and **Model 500** only if equipped with Cold Water Pre-wash or Non-vented Vapor Condenser option; always required on **Model 450**) - Blow out the building cold water supply line to remove chips, scale, etc. Connect line to unit connection.
- STEAM (required on Steam Heated units only) - Blow out the building steam supply line to remove chips, scale, etc. Connect line to unit connection.

NOTE: Live steam; run steam line to a safe drain.

- CONDENSATE RETURN (required on Steam Heated units only) - Connect building condensate return line to unit connection. Condensate return must be vented and non-pressurized.
 - VENT - Connect building ventilation system to unit vent connection.
 - PURE WATER (always required on **Model 400** and **Model 450** and **500**) - Connect building supply line to unit connection.
 - AIR - Connect building supply line to unit connection.
 - ELECTRICITY - Connect building electrical supply to unit electrical supply box. Verify tight electrical connections.
7. Open building supply valves and check for leaks. Correct if necessary.

Cleanup



CAUTION: After utilities are connected to unit, slowly remove the protective adhesive paper from the exterior cabinet panels to reduce the level of static discharge.



CAUTION: When removing adhesives from stainless steel, use a small amount of non-flammable cleaning solvent. Rub in a back-and-forth motion (in same direction as surface grain). Solvent rubbed in a circular motion or applied with a wire brush or steel wool on door and chamber assemblies can be harmful to stainless steel. Do not use solvents on painted surfaces.

1. Close and lock lower service access door.
2. Remove all protective paper from the unit cabinet panels. Slowly peel paper away from stainless steel to reduce the level of static discharge.
3. Remove any adhesive found on panels, door(s) and inside chamber with a small amount of non-flammable cleaning solvent. Keep solvent away from all painted surfaces or damage may result.
4. Inspect unit and work area to be sure all materials used during installation have been removed.

THIS COMPLETES THE INSTALLATION. Before operating the equipment, Installation Checklist (Section 4) and Operational Test (Section 5) should be conducted by a qualified service technician.

Installation checklist must be completed after the unit is installed and prior to performing the operational test to assure complete and correct installation.

NOTE: *Contact your STERIS representative to schedule a technician to test your installation and demonstrate proper equipment operation.*

- ☐ Shutoff valves (not by STERIS), for maintenance purposes and capable of being locked in OFF position only, installed on steam, air and water lines and in compliance with local occupational health and safety regulations, as well as electric and plumbing codes for any special requirements that may pertain to installation of this unit.
- ☐ Disconnect switches (not by STERIS), capable of being locked in OFF position only, installed in electrical supply lines near the unit and in compliance with local occupational health and safety regulations, as well as electric and plumbing codes for any special requirements that may pertain to installation of this unit.

NOTE: *If unit is installed next to other equipment, shutoff valves and disconnect switches should be located so that service can be shut off to one piece of equipment at a time.*

- ☐ Unit positioned, as shown on Equipment Drawing, with required clearance space and in relation to building supply lines.
- ☐ Unit is level. Use leveling legs if necessary.
- ☐ Building cold water line supplies water to unit as specified on Equipment Drawing (required on **Model 400/400i** and **Model 500** only if equipped with Cold Water Pre-wash or Non-vented Vapor Condenser option; always required on **Model 450/450i**).
- ☐ Building hot water line supplies water to unit as specified on Equipment Drawing.
- ☐ Building steam line provides steam to unit as specified on Equipment Drawing (required on Steam Heated units only).
- ☐ Building condensate return line is connected to unit as specified on Equipment Drawing (required on Steam Heated units only).
- ☐ Pure water line supplies water to unit as specified on Equipment Drawing.
- ☐ Building air line supplies air to unit as specified on Equipment Drawing.
- ☐ Building waste line is connected to unit as specified on Equipment Drawing.
- ☐ If vented unit, building ventilation system is connected to unit as specified on Equipment Drawing.
- ☐ Electrical supply for unit is as specified on Equipment Drawing.

- ☐ Pressure for air, water and steam supplies is within range specified on Equipment Drawing.
- ☐ Floor surrounding unit has nonslip surface.

IMPORTANT: After a few weeks of operation, inspect unit for leaks. Re-tighten all clamps and connections.

Test Procedure



WARNING - ELECTRICAL SHOCK HAZARD: Fasteners and star washers are used to ensure protective bonding continuity. Always reinstall any star washer which may have been removed during installation or servicing.

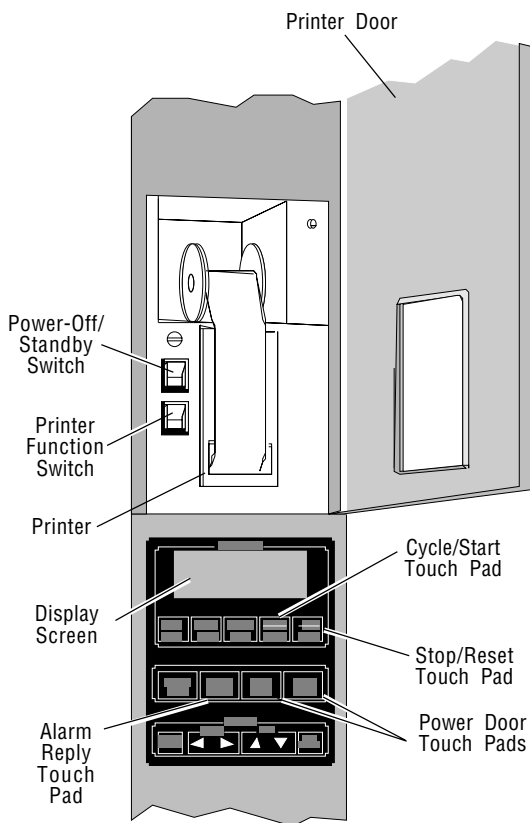


Figure 5-1. Load-side Controls and Printer

Test procedures included in this section should be performed by a STERIS-trained service technician prior to normal operation of the equipment.

IMPORTANT: In case that building waste line has not enough capacity to drain pumped water during drain phase from unit, it is possible to adjust the pumped drain phase to a gravity drain one. A gravity drain phase will extend cycle duration. Refer to page 5-5 to modify drain phase.

NOTE: Chamber door should still be open.

1. Check that debris screens are positioned in wash chamber sump.
2. Check that wash chamber is empty and all packing material (tape and nylon straps) has been removed.
3. Make sure Main Power switch, located in upper service compartment (see Figure 2-2), is in **ON** position.
4. If **Model 450**, remove two set screws securing manifold connector in position. Remove manifold connector and bottom rotary spray arm assembly from wash chamber.

NOTE: If **Model 400** or **Model 500**, manifold connectors remain in position.

5. Unscrew rotary spray holder and lower the rotary spray arm assembly from top of wash chamber. Remove rotary spray arm assembly from chamber.

NOTE: There are two loose bushings between the rotary spray hub and top of wash chamber. When lowering rotary spray arm assembly, bushings will fall. Be sure to hold onto bushings while removing and lowering rotary spray arm assembly.

6. Check that door cables are seated in the pulley grooves (six pulleys). Press **DOOR CLOSE** to close chamber door. If equipped with manual door(s), close door manually.
7. If equipped with manual door(s), lift door slightly and remove quick release pin. Close door.
8. If **Model 500**, lower door as follows:

NOTE: The follow step may require two people.

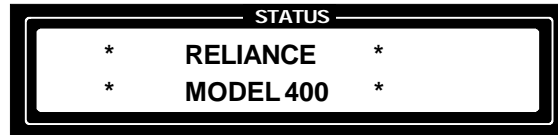
- a) Wearing gloves, pull cable in same direction as pulleys to create enough tension to release the safety latches. Try to apply tension on both sides of the door.

NOTE: Do not pull cable towards the front of the unit, as this may cause the cable to disengage from the pulley grooves.

- b) While pulling on cables push down downward.

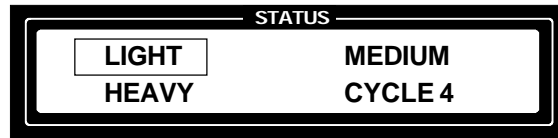
9. Set **POWER-OFF/STANDBY** switch, located behind printer door, to **POWER** (see Figure 5-1). Verify that model name temporarily appears on the display screen:

» *Model 400 display - typical:*



followed by the first cycle menu screen:

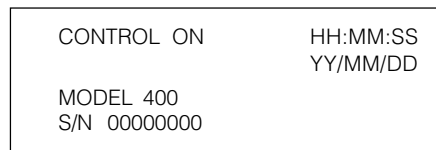
» *Model 400, Model 450 and Model 500 display:*



☐ Indicates flashing position.

10. Check that the printer records:

» *Model 400 printout - typical:*



NOTE: If incorrect time and date are printed, refer to Operator Manual (P-122994-513 for **Model 400/500** and P-920007-237 for **Model 450**) for instructions on adjusting time and date.

11. Check that pure water storage tank begins to fill as soon as **POWER-OFF/STANDBY** switch is set to **POWER**. If not, contact your STERIS service technician. Check that tank does not overfill.

12. Press **CYCLE/START** touch pad once to select the **LIGHT** cycle. Verify name of selected cycle appears on display screen.

» *Model 400, Model 450 or Model 500 display:*



NOTE: Pressing **CYCLE/START** once will select the cycle corresponding to the cycle name flashing on the display screen.

13. Press **CYCLE/START** touch pad a second time to start the **LIGHT** cycle.

NOTE: If **CYCLE/START** is not pressed a second time while the selected cycle name is displayed, screen automatically returns to the cycle menu.

14. Once chamber sump is filled with water, check rotation of the recirculation pump as follows:

- Unlock and open lower service access door.
- While viewing the pump motor shaft, alternately press the **CYCLE/START** and **STOP/RESET** touch pads.

⚠ WARNING - BURN HAZARD: Except for emergency, do not open door when cycle is in progress. In an emergency, first stop cycle by pressing the STOP/RESET touch pad and wait for water flow to stop. Wear protective gloves and face shield whenever reaching into chamber.

⚠ WARNING - BURN HAZARD: When checking the automatic stop feature, wear gloves and face protection and open chamber door slowly. Hot water/steam may be sprayed through door opening if door is opened during a cycle.

⚠ WARNING - FALL HAZARD: To prevent falls, keep floors dry. Promptly clean up any spills or drippage.

⚠ WARNING - ELECTRICAL SHOCK HAZARD: Fasteners and star washers are used to ensure protective bonding continuity. Always reinstall any star washer which may have been removed during installation or servicing.

⚠ CAUTION: Once three-phase power is connected, check pump for correct rotation (indicated by arrow on pump motor). Incorrect pump rotation may result in pump damage and improper cleaning action.

⚠ CAUTION: Before operating unit, always position each manifold or accessory header over a manifold connector. If manifolds or accessory headers are not positioned correctly, damage may result and unit will be unable to effectively wash loads.

c. Verify motor shaft is rotating in direction indicated by the arrow on the motor housing. If pump is rotating in the wrong direction, disconnect main power, reverse any two 3-phase wires and re-check shaft rotation.

d. Close and lock lower access door.

15. Wearing the proper safety protection (gloves and face shield), check automatic stop feature as follows:

Reliance Models 400, 450 and 500:

- Being careful of hot water escaping, press **DOOR OPEN** on load side control to partially open load-side chamber door, until pump stops, during Pre-Wash treatment. Verify that all services to the wash chamber are automatically shut off.
- Press **ALARM REPLY** touch pad to silence alarm buzzer.
- Press **DOOR CLOSE** to close chamber door.
- If double-door unit, repeat steps a. to c. to check automatic stop feature of unload side door, using unload side control.

NOTE: If unit is equipped with manual chamber door(s), partially open and close chamber door manually being careful of hot water escaping. If unit is equipped with double manual door(s), repeat operation on unload side.

Reliance 400 - International and Reliance 450 - International units:

- Automatic doors:
While cycle is in progress, press DOOR OPEN on load side control to open load-side door. Door should remain closed until cycle is complete. If double door unit, repeat for unload-side door.

- Manual door:
During the pre-wash treatment, partially open door by manually pulling door handle up. Pump should stop and all services to the wash chamber should automatically shut off. Display shows:



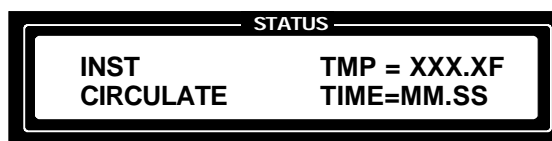
...alternating with



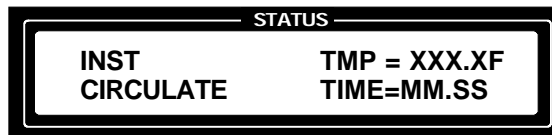
...then



WARNING - FALL HAZARD: To prevent falls, keep floors dry. Promptly clean up any spills or drippage.



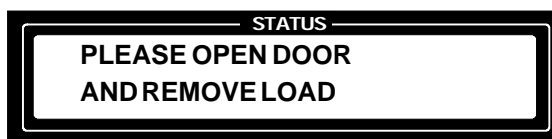
Press ALARM REPLY to acknowledge alarm. Close chamber door. Press START to resume cycle. Display shows:



If double door unit, repeat for unload-side door.

All units:

15. Press **STOP/RESET** touch pad and open chamber door.
16. Remove and clean debris screens under running water. Replace screens in chamber sump.
17. Place bushings on top of rotary spray hub and reattach rotary spray arm assembly to top of wash chamber.
18. If **Model 450** replace bottom rotary spray arm assembly and manifold connector. Re-place two set screws previously removed.
19. Insert empty manifold or accessory headers into wash chamber.
20. Close chamber door and press **CYCLE/START** touch pad to resume cycle operation.
21. Inspect piping, in upper and lower service compartments, for leaks. If any leaks occur, tighten appropriate hose clamp connections and unions.
22. Allow cycle to run to completion. Use the Operator Manual (P-122994-513 for **Model 400/500** and P-920007-237 for **Model 450**) to verify proper unit and cycle operation.
23. Check that alarm buzzer sounds and that the following operator instruction appears on display screen once cycle is complete:



24. Open chamber door and allow chamber and accessories to cool before unloading. Verify display screen returns to the first cycle menu once door is opened.
25. Remove screens from utility supply-line strainers and check for debris. Clean screens if necessary.

» **Gravity Drain** **IMPORTANT:** In case that building waste line has not enough capacity to drain pumped water during drain phase from unit, it is possible to adjust the pumped drain phase to a gravity drain one. A gravity drain phase will extend cycle duration.

1. Lock unit electrical disconnect switch to OFF position.
2. Position Main Power switch (located outside Electrical supply box) to OFF and position Printer POWER OFF/STANDBY switch to OFF.
3. Open Control front panel.
4. Using one hand to support the control assembly, remove the two hex socket screws (upper right and upper left) holding it in place.
5. Carefully lower control assembly forward and downward until unit stops in a horizontal position. Stops are provided to support the control in position.
6. Locate Dip switch emplacement (SW1) on Control PC Board (see Figure 5-2).
7. Make the appropriate settings on the DIP switches, refer to table 5-1.

Table 5-1. Dip Switches Settings
Control PC Board

Dip Switch	Setting
1	OFF = Reliance 400, ON = 450/500
2	OFF
3	OFF
4	OFF
5	Gravity Drain: ON
6	OFF
N.B.	Default Dip Switch Settings: 2-3-4-5-6 = OFF (400/450/500)

This unit is now ready for a thorough System Field Test, Calibration and a first time Preventive Maintenance Checklist Inspection by a qualified STERIS service representative. Contact your STERIS Service Representative for availability and information on this service. Refer to the following Maintenance Manuals for further details on these procedures. **Model 400/500** and **Model 450** (P-764329-129); **Model 400 - International** and **Model 450 - International** (P-764329-131).

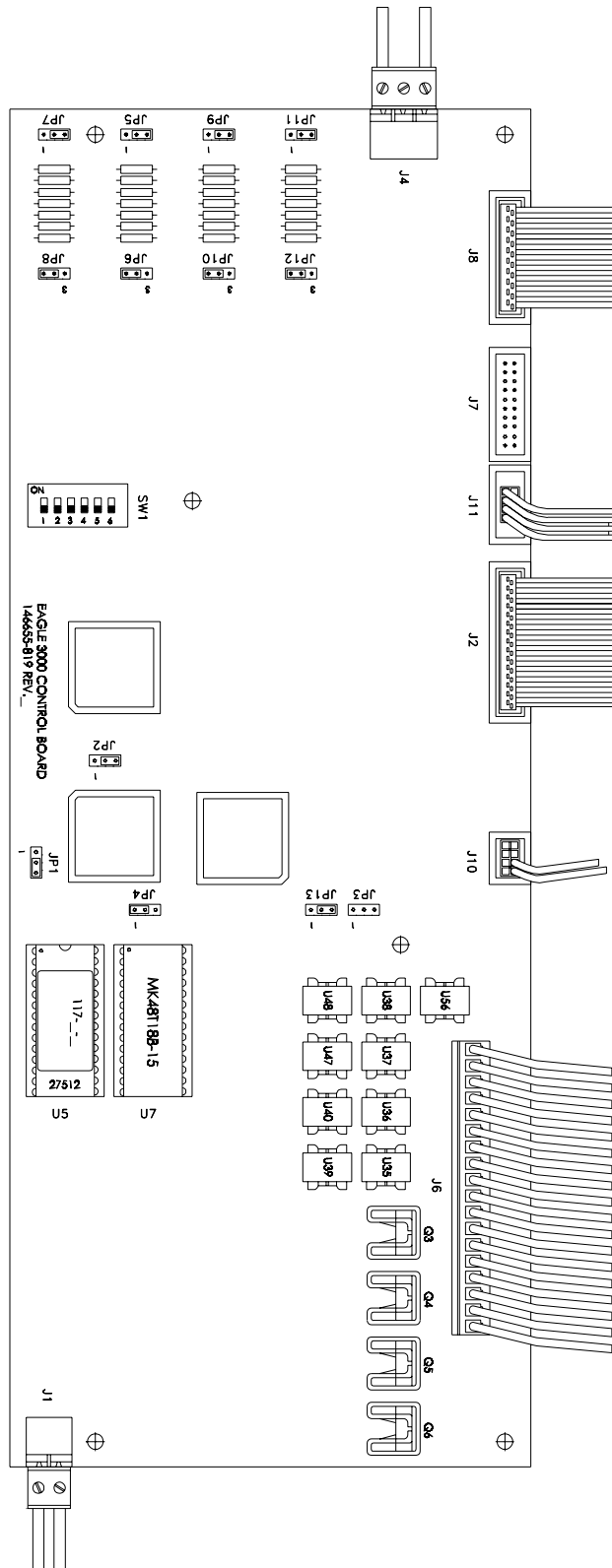


Figure 5-2. Control PC Board Jumper Setting